

REMARKS

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

The Applicant appreciates the Examiner's acknowledgement of allowable subject matter in claims 4, 5, 9 and 10.

By the foregoing amendment, claims 1, 6 and 15 have been amended. Thus, claims 1-12 and 15-16 are currently pending in the application and subject to examination.

In the Office Action mailed August 10, 2005, the Examiner rejected claims In the outstanding Office Action, the Examiner rejected claims 11 and 15 under 35 USC § 102(b) as being anticipated by Udagawa (U.S. Patent No.: 5,880,781, hereinafter "Udagawa"). Under 35 U.S.C. § 103(a), the Examiner rejected claims 1-3 and 6-8 as being unpatentable over Kobayashi et al. (U.S. Patent No.: 6,750,911, hereinafter "Kobayashi"), and claims 12 and 16 as being unpatentable over Udagawa in view of Tanaka (U.S. Patent No.: 6,559,889, hereinafter "Tanaka"). It is noted that claims 1, 6 and 15 have been amended. To the extent that the rejections remain applicable to the claims currently pending, the Applicant hereby traverses the rejections, as follows.

The Applicant submits that none of the cited prior art, nor combination thereof, discloses or suggests at least the combination of features of a drive circuit capable of conducting a symmetric readout operation in each set of ($m \times n$) rows of photoelectric converter elements, wherein rows read-out by said symmetric readout operation are distributed with non-readout rows of equal interval in the column direction of said array, said symmetric readout operation comprising: a first readout operation for reading first

electric charges from a first group of photoelectric converter element rows which have an asymmetric distribution with non-readout rows of unequal interval in the column direction into said vertical charge transfer channel regions; a $j \times n$ -rows transfer operation for transferring the read-out first electric charges $j \times n$ rows after said first readout operation, where j is an integer greater than one; and a second readout operation for reading second electric charges from a second group of photoelectric converter element rows which have an asymmetric distribution with non-readout rows of unequal interval in the column direction, at positions $j \times n$ rows downstream of the rows of said first read-out operation, into said vertical charge transfer channel regions, to respectively add the read-out second electric charges to the transferred first electric charges in said vertical charge transfer channel regions, each one of said read-out second electric charges being added to a respective one of said transferred first electric charges of a same color, said first and second readout operations being capable of reading electric charges from two rows of one unit of photoelectric converter element rows, as recited in claim 1, as amended.

For at least this reason, the Applicant submits that independent claim 1, as amended, is allowable over the cited prior art. As claim 1 is allowable, the Applicant submits that claims 2-5, which depend therefrom, are likewise allowable over the cited prior art at least for this reason.

For similar reasons to those discussed with regard to claim 1, the Applicant submits that none of the cited prior art, nor combination thereof, discloses or suggests at least the combination of features of (a) enabling $(m \times n)$ rows of photoelectric converter elements as one set, where m is an integer greater than one, to read first

electric charges from a first group of photoelectric converter element rows which have an asymmetric distribution with non-readout rows of unequal interval in the column direction into said vertical charge transfer channel regions; (b) transferring the read-out first electric charges $j \times n$ rows, where n is an integer greater than one, after said readout step (a); and (c) reading second electric charges from a second group of photoelectric converter element rows which have an asymmetric distribution with non-readout rows of unequal interval in the column direction, at positions $j \times n$ rows downstream from the rows of said readout step (a), into said vertical charge transfer channel regions, to respectively add the read-out first and transferred second electric charges of a same color to each other in said vertical charge transfer channel regions, said first and second readout steps (a) and (c) being capable of reading electric charges from two rows of one unit of photoelectric converter element rows, as claimed in claim 6, as amended.

For at least this reason, the Applicant submits that independent claim 6, as amended, is allowable over the cited prior art. As claim 6 is allowable, the Applicant submits that claims 7-10, which depend therefrom, are likewise allowable over the cited prior art at least for this reason.

In making this rejection, the Examiner asserts that in Fig. 1 of Udagawa, the first two rows (from the top) having color layouts CYC and MGM, respectively, constitute one unit, and the fifth and sixth rows (from the top) having color layouts CYC and GMG, respectively, constitute a second unit. The Examiner further asserts that these "units" are repeatedly and contiguously arranged in said array in a column direction. It is respectfully submitted that, by definition, first and second rows of an array are not contiguous with the fifth and sixth rows of the array, unless the third and fourth rows of

the array are missing. As the array of Udagawa includes third and fourth rows disposed between the first and second rows and the fifth and sixth rows thereof, it is submitted that the first and second rows of the array of Udagawa are not contiguous to the fifth and sixth rows of the array of Udagawa. Moreover, in claim 11, the first row of each unit has a first color layout of color filters arranged in a row direction and the second row of each unit has a second color layout of color filters arranged in the row direction.

In view of the above, it is respectfully submitted that none of the cited prior art, nor combination thereof, discloses or suggests at least the combination of features of an array of color filters including a plurality of units, each unit consisting of two adjacent photoelectric converter element rows, said units being repeatedly and contiguously arranged in said array in a column direction, in which one color filter of the array is formed over each of said photoelectric converter elements, wherein, the first row of each unit has a first color layout of color filters arranged in a row direction and the second row of each unit has a second color layout of color filters arranged in the row direction, said second color layout being different from said first color layout; one vertical charge transfer channel region formed in said semiconductor substrate for each of the columns of said photoelectric converter elements, adjacent to said each column; a plurality of vertical charge transfer electrodes in which two vertical charge transfer electrodes are disposed over said vertical charge transfer channel regions for each of the rows of said photoelectric converter elements; and a drive circuit capable of applying readout pulse voltages to said vertical charge transfer electrodes corresponding to said photoelectric converter element row having said first color layout in a first unit and to said vertical charge transfer electrodes corresponding to said

photoelectric converter element row having said second color layout in a second unit, said second unit being at a position apart from said first unit by two photoelectric converter element rows in the column direction, as recited in claim 11.

For at least this reason, the Applicant submits that independent claim 11 is allowable over the cited prior art. As claim 11 is allowable, the Applicant submits that claim 12, which depends therefrom, is likewise allowable over the cited prior art at least for this reason.

In addition, the Applicant submits that independent claim 15, as amended, is allowable over the cited prior art because the cited prior art does not disclose or suggest at least the features of a plurality of vertical charge transfer electrodes in which two vertical charge transfer electrodes are disposed over said vertical charge transfer channel regions for each of the rows of said photoelectric converter elements; and a drive circuit capable of applying readout pulse voltages to said vertical charge transfer electrodes corresponding to said photoelectric converter element row having said first color layout in a first unit and to said vertical charge transfer electrodes corresponding to said photoelectric converter element row having said second color layout in a second unit, said second unit being at a position apart from said first unit by four photoelectric converter element rows in the column direction, as claimed in claim 15, as amended.

For at least this reason, the Applicant submits that independent claim 15, as amended, is allowable over the cited prior art. As claim 15 is allowable, the Applicant submits that claim 16, which depends therefrom, is likewise allowable over the cited prior art at least for this reason.

With regard to each of the rejections under §103 in the Office Action, it is also respectfully submitted that the Examiner has not yet set forth a *prima facie* case of obviousness. The PTO has the burden under §103 to establish a *prima facie* case of obviousness. In re Fine, 5 U.S.P.Q.2nd 1596, 1598 (Fed. Cir. 1988). Both the case law of the Federal Circuit and the PTO itself have made clear that where a modification must be made to the prior art to reject or invalidate a claim under §103, there must be a showing of proper motivation to do so. The mere fact that a prior art reference could arguably be modified to meet the claim is insufficient to establish obviousness. The PTO can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. Id. In order to establish obviousness, there must be a suggestion or motivation in the reference to do so. See also In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984) (prior art could not be turned upside down without motivation to do so); In re Rouffet, 149 F.3d 1350 (Fed. Cir. 1998); In re Dembiczak, 175 F.3d 994 (Fed. Cir. 1999); In re Lee, 277 F.3d 1338 (Fed. Cir. 2002).

In the Office Action, the Examiner merely states that the motivation for combining the references is found in certain advantages stated by the Examiner (see, e.g., Office Action at pp. 14-15). The Examiner, however, indicates nothing from within the applied references to evidence the desirability of this combination. This is an insufficient showing of motivation.


CONCLUSION

For all of the above reasons, it is respectfully submitted that the claims now pending patentability distinguish the present invention from the cited references. Accordingly, reconsideration and withdrawal of the outstanding rejections and an issuance of a Notice of Allowance are earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is requested to contact the undersigned representative at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of time. The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment associated with this communication to Deposit Account No. 01-2300, referencing docket number 107317-00044.

Respectfully submitted,
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